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## Sound Acquisition for Kindergarteners with Disabilities

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Action Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of  
Master of Arts in Education

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Action Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of  
Master of Arts in Education

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### Abstract

Reading is an essential skill and should be taught using a curriculum that is founded on evidence-based practices. These practices are specifically important to include research examining specific curriculums for specialized populations. This study examined sound acquisition through the use of *Benchmark Advance* in a special day kindergarten classroom. Two Hispanic males who are diagnosed with an autism spectrum disorder and who are both English language learners were the participants. This study implemented an AB design to measure sound acquisition. Participants received specialized instruction (*Benchmark*) that included three 17-minute stations that focused on skills related to sound acquisition and a 10-minute session on speech sound acquisition. Results from this study indicate that *Benchmark* is a successful intervention for the improvement of sound acquisition in this population. The positive outcomes of the use of *Benchmark* in this study have future indications in the teaching of sound acquisition for this specialized, growing population as it may impact reading ability and overall academic success.

*Keywords:* Benchmark, autism, sound acquisition, ELL

### **Literature Review**

Early literacy skills are a well-established precursor to a child's personal and academic success (Pamparo, 2012). Many essential daily functions are executed with reliance on the ability to read; thus a deficit in this essential skill drastically impacts nearly every aspect of a person's ability to function independently in everyday life (Rosenberg, 2008). The ability to read improves an individual's access to the community and supplies the foundation for the development of other essential life skills, such as maintaining employment and interacting with others (Pamparo, 2012). Thus, learning to read is imperative for everyone regardless of diagnosis or ability level.

The National Reading Panel (NRP) identified the five main components of reading as: phonological awareness, phonics, vocabulary, fluency, and comprehension (NRP, 2000). Each of these five components is required, and vital when learning to read and should be taken into account when teaching children to read. Various publishers create reading curriculums for school districts to adopt. Because many of these curriculums are founded on evidence-based practices, they are extremely popular. These curriculums typically include the five main components of literacy and many students learn to read through instruction with these curriculums; however, for some student populations, these curriculums are not beneficial (Thompson & Nicholson, 1999).

English language learners (ELLs) are individuals whose native language is a language other than English. From 1991 to 2002, the ELL population grew by 95 percent; between 1990 to 2004 ELL enrollment doubled, with approximately three-fourths of such students coming from homes where Spanish is the primary language (Cardenas-Hagan, Carlson, & Pollard-Durodola, 2007). ELL students are assimilating

into a world of an unknown dialect where they are expected to perform competitively with native speakers. ELL students are faced with learning to not only understand, but to speak, and read in English (Rahn, 2015).

Many ELL students come from homes where literacy exposure and experiences are lacking (Arias, Morillo-Campbell, 2008). Literacy in the home setting is important to a young child's reading success. One such experience that may be lacking in the homes of an ELL student is reading aloud, such as storybook reading from a parent (Cabell, Ford, Gartland, Invernizzi & Konold 2012). The lack of prior literacy experiences in either a native language or English may be detrimental to the student upon entering kindergarten.

Kindergarten is students' first exposure to structured reading curriculum. *Reading Mastery* (SRA/MacGraw-Hill, n.d.) has been used to see its impact on reading skill acquisition for ELL students. Gunn, Biglan, Smolkowski, & Ary (2000) used a strong methodological design and found that *Reading Mastery* had a potential positive impact on ELL students reading achievement. Thus, ELL children are not performing at the same academic proficiency as children whose first language is English. According to the Reading Readiness Model, a model that is still currently in use despite becoming antiquated, states that a majority of children with developmental disabilities would not receive any literacy instruction on the assumed basis that they 'were not ready' (Pamparo, 2012). As a result of this poor exposure to early literacy experiences in the home environment, these children do not acquire prerequisite skills before attempting to learn how to read and write, and formal reading instruction is often not included as part of their

educational plan (Pamparo, 2012). Another population other than ELL students that may struggle with a curriculum developed for typical students are individuals with autism.

Students with autism spectrum disorder (ASD) face an even greater risk of illiteracy if they are deprived of early literacy experiences in the home or classroom (Rosenberg, 2008). The diagnosis of ASD and the prevalence of students with autism in U.S. classrooms is on the rise. Calhoon (2001) specifically examined the degree to which students with ASD could master phonics rules. Additionally, word recognition skills of 10 children with autism were studied. The participants had IQ scores ranging from two standard deviations to average. To be included in the study, the children had to have mastery of second-grade sight words. Word parts, graphemes and phonemes, onsets and rime, and recognition of high-frequency words were all assessed as part of the study. It was found that children had developed phonics skills and that they attended to word parts that provide cues, such as rimes. Therefore, the author suggested phonics instruction that encompasses word families, word parts, and structural analysis may help students with autism learn to gain literacy skills. However, many of the published curriculums may not include each of those components required for instructional modification and supplemental material.

Teachers of these populations (ELL and special education) often have to modify and provide supplemental instruction. Some publishers recognize the frequency in which this is done and have made attempts at creating more flexible curriculums. One of the newer flexible curriculums is *Benchmark* (Benchmark Literacy, n.d.) which includes specific intervention materials for students who are struggling with literacy. *Benchmark* activities and intervention are based on research proven procedures shown to be effective



in teaching literacy skills to children (Benedek-Wood, 2015). *Benchmark* aims to teach the five components of reading.

The purpose of this current study was to investigate the impact of *Benchmark Advance Intervention* in the development of letter sound acquisition for ELL students with ASD using research based instructional strategies. Specifically, this study sought to answer the following question:

What influence does the *Benchmark Advance Intervention* have on the acquisition of letter sounds in kindergarten students who speak Spanish as their primary home language and have a primary disability of Autism Spectrum Disorder?

## **Methods**

### **Participants**

The participants were two male students with autism as their primary disability and Spanish as their primary home language. The two students attended a kindergarten/first grade Special Day Class. The teacher identified and recommended the participants based on: (1) their similar demographic data; (2) tandem phonetic skill level; and (3) their available information.

Participants were given pseudonyms for the confidentiality and anonymity. The demographic data for each student is as follows:

Matias: Male; Age: 5 yr. 3 mo.; came from an Intervention Preschool setting and entered special education in March of 2014.

Diego: Male; Age: 5 yr. 10 mo.; came from a Transitional Kindergarten class setting and entered special education in March of 2013.

**Setting**

A special day class designed to promote communication and social skills for kindergarten and first graders in a school district in the Monterey area provided the setting for this study. The district fosters eleven Kindergarten through sixth grade public schools, and partners with one charter school to serve approximately 9,000 students. A large job sector in this area lies in agricultural and field work. According to the school district report, Hispanic and Latino students constitute 93.5 percent of the student population (“About the district,” n.d.).

**Materials**

The materials used in this study consisted of *Benchmark Advance: Grade K* classroom kits. *Benchmark Advance Intervention in Print Concepts* and *Benchmark Advance Intervention in Phonics and Word Recognition* were two of the main resources used in providing and delivering the lessons in sound acquisition. The *Benchmark* resources utilize re-teaching strategies and provide ample practice to reinforce instruction in the core program while implementing direct instruction of the Reading Standards for Foundational Skills. The materials directly related to the teaching of sound acquisition are as follows: Startup Phonics Picture Word Cards, Frieze Cards, Letter Cards, Phonics & High-Frequency Words Activity Book, and Grade K Decodable Readers.

**Independent Variable and Procedure**

Participants received specialized instruction in the implementation of *Benchmark Advance* that consisted of three 17-minute stations and a 10-minute session on speech / sound acquisition of the letters /c/, /i/, /b/, and /e/ (see Appendix A). The first station included instruction in letter names and sounds, while the second station included

instruction of sounds and high frequency words, and the third station included instruction of phonics word recognition

### **Dependent Variable**

The percentage of sound acquisition was the dependent variable of this study. Students were probed on sound acquisition each day, prior to instruction. The probe sessions included four presentations of each letter sound.

### **Research Design**

Two AB designs were used to answer the research question. Participants entered pre-intervention simultaneously and moved to intervention once they had stable baseline data that were not moving in a counter-therapeutic direction.

### **Inter-observer Agreement (IOA)**

An inter-observer agreement (IOA) was conducted for 13 percent of the sessions. The primary researcher and the secondary observer independently counted the number of sounds for the sessions. Agreement was calculated using total agreement. That is, for each session the secondary observer scored with the primary researcher the smaller number of sounds, divided by the larger number of sounds and the dividend was converted to a percentage. The inter-observer agreement was 100%.

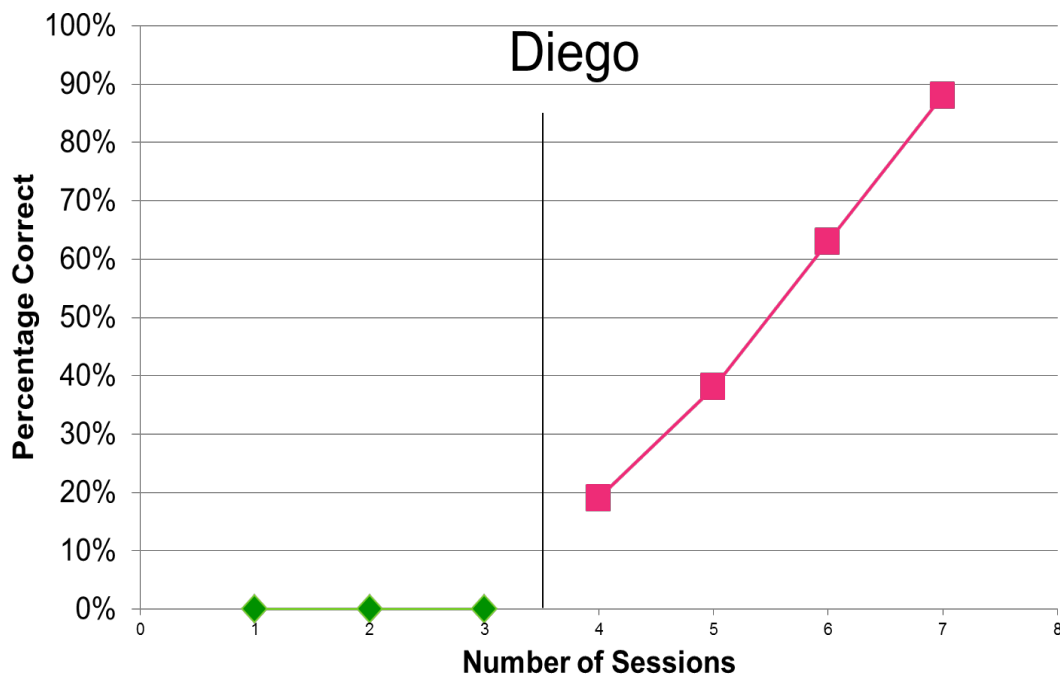
### **Social Validity**

A Social Validity Questionnaire was generated and distributed to four educators at the school. The questionnaire was used to measure the perceptions of the *Benchmark* intervention (see Appendix B). The questionnaire included 7 likert-scale questions that measured the opinions of several educators regarding their perceived merit of the *Benchmark* curriculum on a scale of 1 to 5. Three out of four of the educators reported

that reading is an essential skill for students. Three of four indicated that the knowledge of letter sounds is essential to learn literacy and that the time requirements of the *Benchmark* Intervention are reasonable.

### Results

Figure 1 provides a visual depiction of the results where the X axis indicates the number of sessions and the Y axis is the percent of correct sound acquisition. Matias' baseline percentages were all zero. For intervention, his percent correct per session ranged from 10 percent to 40 percent, with an average of 27 percent. Diego also had little variation in his baseline data, as he had 0 percent acquisition. During intervention, Diego's percent correct per session ranged from 20 percent to 90 percent with an average percent score of 52 percent.



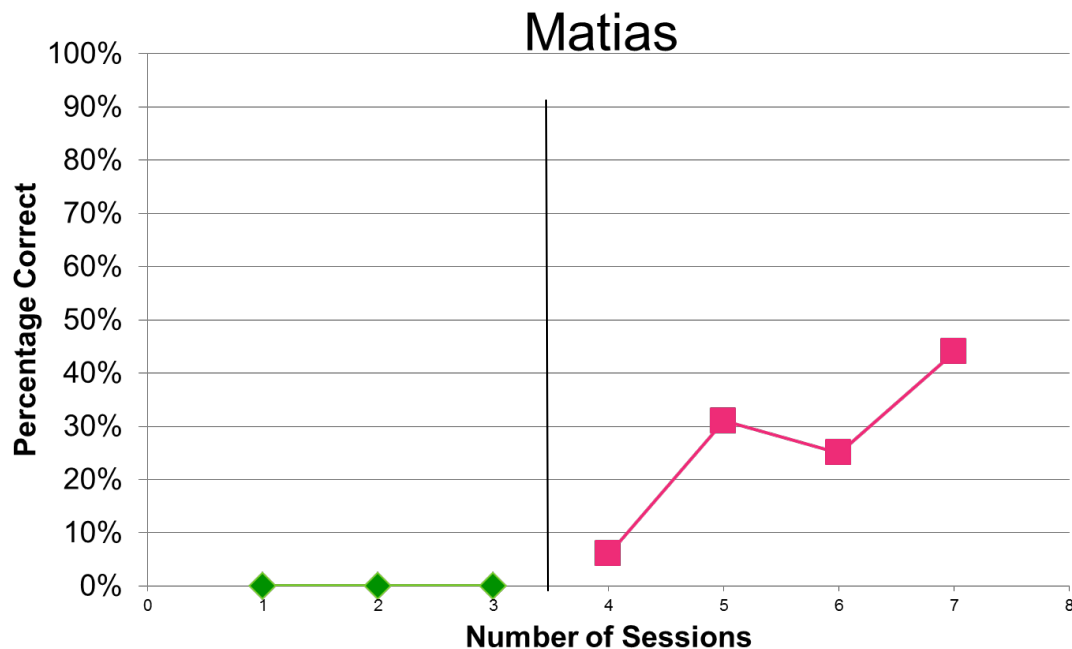


Figure 1. Sound acquisition as measured by percent correct per session.

### Discussion

The purpose of this study was to examine the effect of the implementation of *Benchmark* interventions on sound acquisition for two students with ASD who are ELL. There is a functional relation between the use of *Benchmark* intervention materials and the percentage of learned sounds. This functional relation is demonstrated and replicated. The relation is further strengthened by the lack of overlapping data. There are no overlapping data points for Matias or Diego.

The intervention for Matias showed an immediate, albeit small impact. He continued to show improvement throughout the study as compared to his baseline data. There is slight variability in his data, which may be influenced by his echolalia speech

patterns. Echolalia is a component of many psychological disorders and is common for individuals with ASD (Vicker, 2009).

Diego showed immediate and consistent improvement with a gain of 90% since baseline in sound acquisition. Factors that may influence Diego's data could include his age, as he is seven months older and has been receiving special education services for a year longer than Matias.

Overall, both participants made progress, which is encouraging as many homes that include ELL students have fewer books and other experience related to literacy (Arias, Morillo-Campbell, 2008). As addressed earlier in this study, Matias and Diego are both ELL students. ELL students may have a greater disadvantage than their English speaking peers in sound acquisition. The acquisition of sounds will impact reading abilities and may significantly impact the quality of life for Diego and Matias (Browder et al., 2008).

At the onset of this study, research indicated that there were no prior studies that utilized *Benchmark* as an intervention tool. There was an apparent lack of research that addressed the literacy needs of students with ASD who are also ELL. Thus, results of the current study have several implications for future research in young ELL children with ASD. While this study was limited by a small population size, the significant improvement shown in each student's abilities suggests that further research should utilize the *Benchmark* intervention. The *Benchmark* intervention is a promising resource for sound acquisition in this population as results of this study show that the *Benchmark* intervention was effective in increasing sound acquisition for two students with ASD who are ELL.

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## Appendix A

**Prompts:**

Identifying and Name Initial Consonant Cc:

Show the picture of the sound/spelling card to review the sound. This is the Cc card

Say: "Listen to this sound /k/. Say it with me: 'k.' Now say it on your own: 'k.'"

Display the poetry poster and read it aloud again."

Show the letter.

Say: "The way we write the sound /k/ is with the letter 'c.' The letter 'c' makes the sound /k/. What is the name of the letter? 'c.' What sound does the letter make? /k/."

Say: "We will look at each picture. Say its name. If we hear the sound of k at the beginning of the word, we will circle the picture. If we do not hear the sound /k/ at the beginning, we will cross out the picture."

Say: "What do you see in the picture? 'Can.' Do you hear the sound /k/ at the beginning of the word? Circle the picture. If you do not hear the sound /k/ at the beginning of the word, then cross out the picture. Repeat with other words."

## Appendix B

Social Validity Questionnaire:  
Letter sound acquisition and use of the *Benchmark* Intervention

The questions below are to rate your experience and opinion on reading skills and teaching reading skills using the *Benchmark* Intervention component of the intervention kit. Please rank your answers using a five-point scale in which:

1=Strongly agree 2=Agree 3=No response (due to non-use) 4=Disagree 5=Strongly Disagree

1. I think reading is an essential skill for students.  
1 2 3 4 5
2. I think knowing letter sounds is essential to learning to read.  
1 2 3 4 5
3. I understand the intervention steps.  
1 2 3 4 5
4. The intervention is easily incorporated into my classroom system.  
1 2 3 4 5
5. I have the necessary materials to implement this intervention accurately.  
1 2 3 4 5
6. The time requirements of this intervention are reasonable  
1 2 3 4 5
7. I believe that this intervention will produce effective results.  
1 2 3 4 5

Teachers/Staff:

Please fill out this questionnaire and place in my box.

Thank you for your professional input and time.